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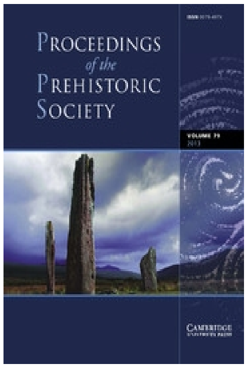

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The Catholme Ceremonial Complex,Staffordshire, UK

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During the 1960s and 1970s, aerial reconnaissance on the northern side of the confluence of the Rivers Trent, Tame, and Mease in Staffordshire revealed a cluster of features indicative of prehistoric ceremonial activity. Some of the features within the cluster are morphologically unique, but a lack of previous investigation meant that their dating, phasing, and function were unknown. This paper details the results of a multi-disciplinary approach to addressing these questions about the complex and to place it into its contemporary landscape context. The results indicate that the complex represents numerous phases of symbolic and ceremonial activity extending from the late Neolithic and into the early Bronze Age. Furthermore, it has shown how these structures fit within a wider landscape of ceremonial activity extending back to the earlier Neolithic and continuing into the Bronze Age.

BACKGROUND

Location and discovery

Catholme lies to the north of the confluence of the Rivers Trent, Tame, and Mease, in south-eastern Staffordshire (Fig. 1). This area has been a focus for aggregate extraction since the middle of the 19th century, reaching a peak in production in 1989. Until the 1960s, very little of the archaeology of this landscape was known and that which had been discovered consisted of occasional chance finds, mostly found during quarrying. At around this time, the archaeological landscape was beginning to emerge, largely through the aerial reconnaissance work of Jim Pickering. In the 1960s and 1970s the threat to this newly revealed archaeological landscape was beginning to be addressed through active fieldwork by the 'Rescue' movement and the formation of the Trent Valley Archaeological Research Committee (TVARC). The archaeological landscape that had been revealed (Whimster 1989) was challenging the previous assertion that 'the heavily wooded midland plain, where pre-Roman occupation of any kind is likely to have been scanty, transient or both' (Piggott 1955).

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The complex

One concentration of monuments to the north of the confluence, identified as cropmarks, has been afforded statutory protection through scheduling (SAM 21679) and has thus survived direct damage through aggregate extraction. This cluster of features may be termed the 'Catholme Ceremonial Complex' (Fig. 1). The complex comprises a cluster of monuments within an area measuring approximately 1000 x 300 m, and is situated within a rich archaeological landscape defined mostly by cropmarks. Spatially, the cluster is bounded by the river floodplains to the east, and the rising land to the

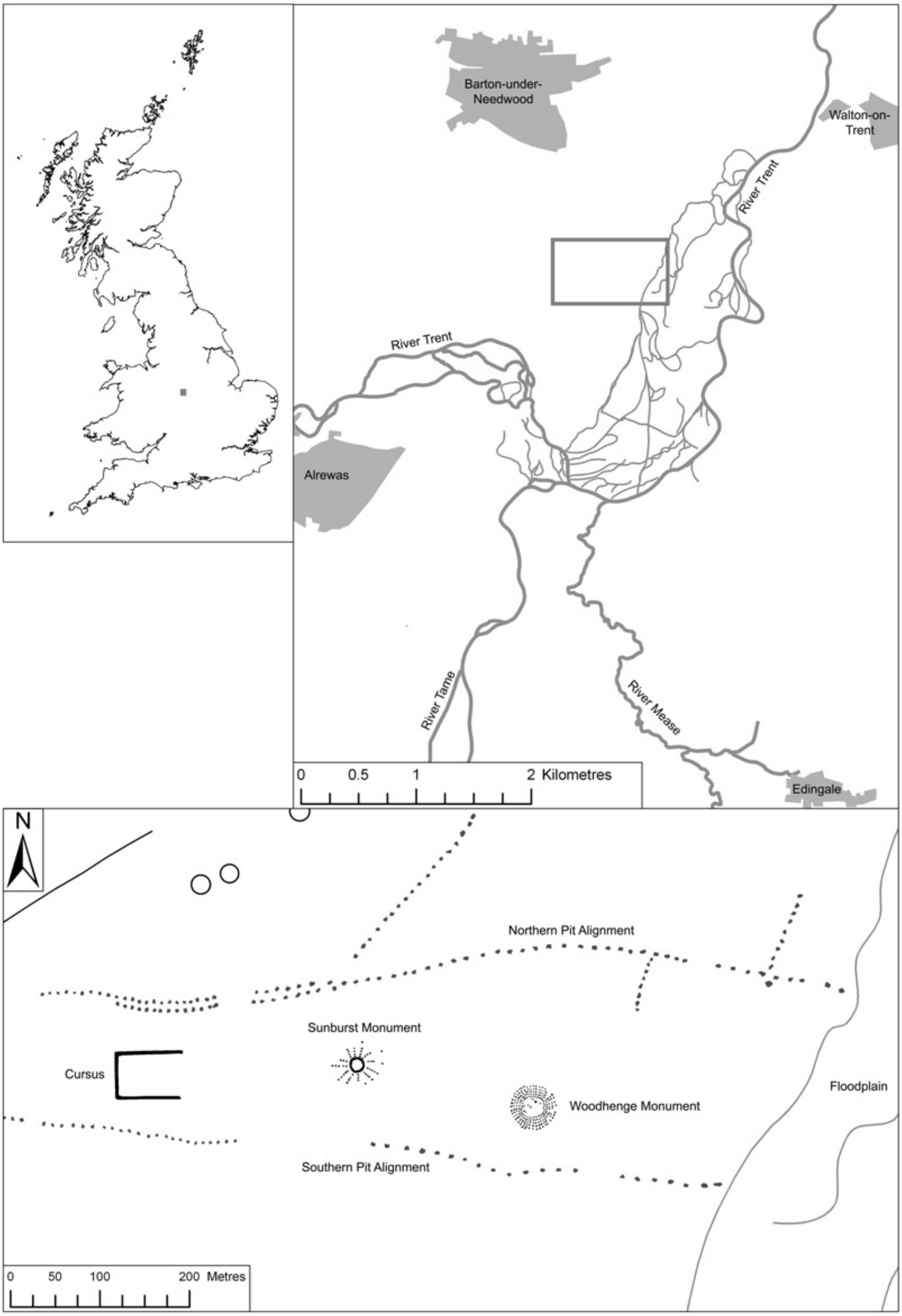

Fig. 1.
Location and monuments of the Catholme Ceremonial Complex

west. To the north and south, the cluster is bounded by two pit alignments.

The westernmost feature within the complex is defined by a cursus aligned east–west. The western terminus of this feature was originally identified as a cropmark although the position of its eastern terminus has not been recognised. It is approximately 45 m wide and extends for 110 m before running under modern farm buildings and hard-standing. The feature is not visible as cropmarks to the east of these buildings and was not identified from geophysical survey in this area. Thus it seems most likely that the cursus would have had a maximum total length of 160 m. The regular, rectangular shape of its surviving terminus places it within Loveday's class Bi (Loveday 2006), a cursus type common within the Midlands region, although its short length is unusual. The dating of cursuses is problematic, although recent research combining all of the available radiocarbon dates from these monuments has suggested that the principal phase of cursus construction in Britain took place between *3640–3380* and *3260–2020 cal BC* (*95% probability*; Barclay & Bayliss 1999). Here and throughout this paper, *italics* are used to denote posterior density estimates derived from Bayesian modelling of radiocarbon and archaeological information.

Approximately 130 m east of the cursus is an enigmatic cluster of pits also identified from cropmarks. The pits are arranged in 12 radiating alignments surrounding a ring ditch, with an overall diameter of 57 m. The form of this monument is of a unique type, and the plan of its radiating pits resulted in the monument being referred to as the 'Sunburst Monument' (SAM 21679–02). It lies broadly in line with the cursus to the west, although it lies outside of the boundaries of the cursus and hence would not have been an internal terminus feature as identified at other sites, such as Springfield in Essex (Hedges & Buckley 1981; Buckley *et al*. 2001).

A further 150 m to the east-south-east of the Sunburst Monument is a second pit-defined structure, also identified through aerial reconnaissance (SAM 21679–01). This consists of five concentric rings of pits with an overall diameter of 50 m, enclosing an inner area approximately 21 m in diameter. The pits forming the five rings are positioned to create 39 radiating alignments, effectively presenting a similar, though denser, form to the Sunburst Monument. Monuments defined by concentric rings of pits (or posts) have been identified elsewhere (*cf*. Gibson 1998), such as the pits forming the second phase of the Durrington Walls Southern Circle which displayed six concentric rings dating to the middle to late 3rd millennium cal BC (Wainwright and Longworth 1971), although the recent discovery of buildings within the interior of Durrington Walls (Thomas 2007) makes any functional comparison more complex. However, the five concentric rings at both Mount Pleasant in Dorset and the Sanctuary near Avebury (Pollard 1992) are reminiscent of this monument. This structure is referred to as the 'Woodhenge Monument' on the basis of its plan which shows a marked similarity to Woodhenge in Wiltshire (Cunnington 1929; Pollard & Robinson 2007).

Bounding the area of the Catholme Ceremonial Complex to the north and south are two pit alignments, defined by rows of both single and double pits. These are broadly aligned east–west extending for approximately 1 km, linking the rising land to the west with the floodplains to the east. Towards the eastern end of the alignments, the distance between them widens to form a funnel shape in plan. Within the central area, around the cursus, the pit alignments are 130 m apart, widening to the east in the area of the Woodhenge Monument to a maximum of 250 m. Despite the ubiquity of pit alignments within the Trent Valley, their dating remains problematic. Where excavation has been undertaken, the features are found to commonly date to between the middle Bronze Age and the late Iron Age (eg, Coates 2002). However, some sites have revealed earlier dates for pit alignment construction. Neolithic dates have been suggested on sites such as Marton-le-Moor in North Yorkshire (Taverner 1996) and, at Thornborough, also in North Yorkshire, excavation of the southern pit alignment – a 350 m long monument located close to one of the henges – provided radiocarbon dates from the primary fill which calibrated to 1750–1590 cal BC, with dates from recutting calibrating to 1000–925 cal BC (95% confidence) (Harding & Johnson 2003).

Regional archaeology

The Catholme Ceremonial Complex lies within a dense regional distribution of prehistoric monuments dating from the earlier Neolithic through to the Iron Age. The earliest periods are represented by a number of causewayed enclosures lying to the west of the Catholme area (Fig. 2), at Alrewas, directly to the west (Palmer 1976; Hodder 1982; Martin 1998), and at Mavesyn Ridware, 6 km to the west (Oswald *et al.* 2001), the latter associated with a possible cursus (Loveday 2006). A number of additional cursuses are also recorded from within the wider landscape of the complex. Three additional sites have been suggested from the aerial photography from the region (Hodder 1982; Jones 1992; Palmer 1976). These features vary in dimensions, the largest measuring 670 m by 35 m. All three of these cursuses have been scheduled (Fig. 2, cursuses 1, 2, and 4).

Activity towards the end of the Neolithic period is represented by a number of smaller, possible hengiform monuments. One of these, approximately 400 m to the south of the Catholme Complex, is defined by a circular enclosure near Wychnor Bridges, some 60 m in diameter and defined by a single ditch. This site appears to have been re-visited during later periods with the construction of a number of much smaller ring ditches indicative of barrows in its immediate vicinity. Two additional features constructed on islets within the anastomosed River Trent lie to the east of the Catholme Complex at Fatholme and Borough Holme. The Fatholme site was excavated in advance of quarrying (Losco-Bradley 1984) although the full results have not yet been published. The cropmark evidence for this site indicates a double ring ditch 24 m in diameter enclosing an area of just 14 m in diameter. Excavation revealed at least seven circuits of interrupted ditches. Whilst some early Neolithic material was discovered during excavation, late Neolithic Grooved Ware pottery and Beaker were also uncovered. The site appears to be too small to be classed as a causewayed enclosure, and may perhaps more appropriately be considered as a hengiform site.

The site at Borough Holme lay approximately 500 m to the south-east of Fatholme, defined by two concentric ditched circles, and parts of a possible third ring, enclosing a central area of 21 m diameter. The site was destroyed by quarrying without archaeological investigation, although morphologically it would appear best suited to the broader, though vague, class of later Neolithic hengiform sites. A fourth site, 2.5 km to the south of Catholme lies in the area of the National Memorial Arboretum. This site was identified from aerial photography (SMR193, SAM199, Hughes & Hovey 2002), with four concentric circuits of ditches or pits with an overall diameter of about 35 m. Small-scale investigations in 1996 and 1997 on the periphery of the monument revealed a total of 11 sherds of a stylistically late Beaker vessel (Woodward 2002). It may be considered that this material represents a later addition to an earlier hengiform monument.

Evidence for the early Bronze Age indicates an explosion in activity within the region. The wider area has been noted as the most significant concentration of monuments from this period within the middle and upper Trent basin (Vine 1982), and there are marked concentrations of ring ditches around the confluence of the Rivers Tame and Trent, upstream of the Trent–Soar confluence more generally (Garwood 2003; Loveday 2004; Woodward 2003), reflecting the distribution of the earlier cursuses (Knight & Howard 2004). Within the area of the Catholme Ceremonial Complex, the distribution of ring ditches and possible barrows follows the lines of the rivers, extending to the north-east and west of the focus area along the Trent valley, to the south along the Tame valley, and to the south-east along the Mease. There is a marked concentration on the more elevated areas directly overlooking the Ceremonial Complex. Where excavated and datable material has been recovered, these features have been dated to the early Bronze Age (eg, Coates 2002).

Environmental context

The landscape that contains and surrounds the Catholme Ceremonial Complex has been altered dramatically in recent decades through quarrying, the impact of which is visible along the full lengths of the rivers. A study aimed at defining the evolution of the rivers in this landscape was undertaken by Davies and Sambrook Smith (2006). This study identified Palaeolithic channels (characterised by the remains of megafauna – Buteux *et al*. 2003) in addition to a complex braided river system around the confluence which would have created a series of islets across the floodplain (including the sites at Fatholme and Borough Holme mentioned above).

Whilst no direct palaeoecological study has been undertaken within the area of the Complex, evidence from the lower reaches of the River Trent indicates a closed canopy woodland during the earlier Neolithic period, including oak, elm, beech, lime, ash, hazel, and alder. This is reflected by the carbonised plant remains recovered from Whitemoor Haye to the south (Coates 2002). The level of woodland clearance during the

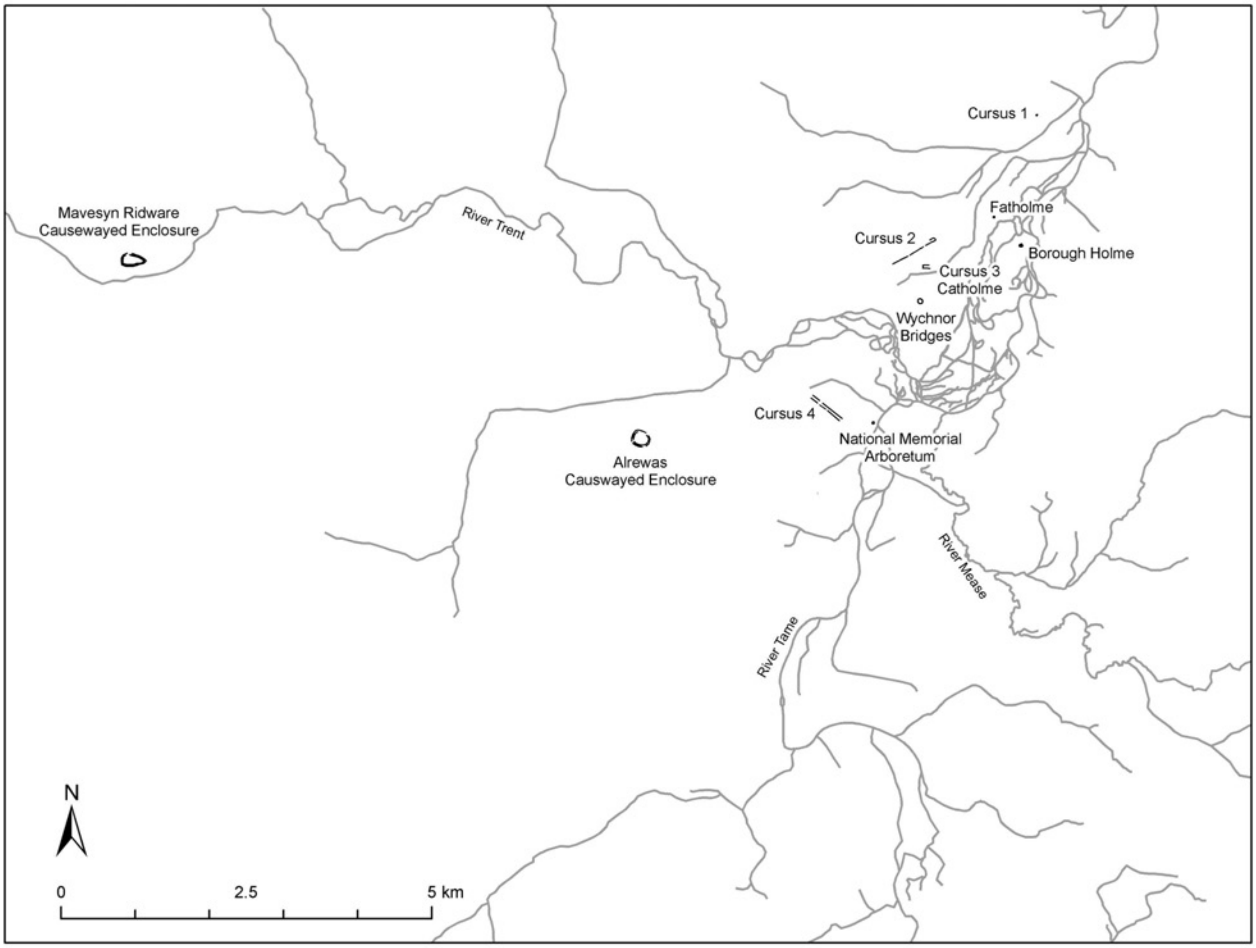

Fig. 2.
Monuments within the wider landscape

Neolithic is subject to some debate which impacts the ways in which monuments may be interpreted (eg, Cummins & Whittle 2003; Chapman & Gearey 2000). Evidence from the Aston Cursus to the north-east of the site indicated grassy disturbed ground and thus some level of clearance by the middle of the Neolithic, at least in localised areas (Guilbert 1996). By the earlier Bronze Age it appears that the landscape had become relatively open, as revealed by samples obtained from beneath barrows. Whilst some mixed woodland persisted (Pearson 1956), overall the landscape was relatively open with evidence for a mosaic of woodland and open pasture (Limbrey 2000).

An indication of the later environmental context is provided by the nearby site of Whitemoor Haye to the south of the confluence (Smith in Coates 2002, 67). Analysis of insect remains indicates that, by the Iron Age, the landscape was largely cleared. Despite a paucity of pollen research from the local region, it appears that partial forest clearance together with pastoral and arable agriculture took place from the early Neolithic to the Bronze Age, with large-scale forest clearance between around 750–550 cal BC (Bartley & Morgan 1990).

METHODS

Three phases of fieldwork were undertaken in 2003 and 2004, all combined together spatially using differential GPS. The initial phase comprised a geophysical survey of the wider area, to build upon previous geophysical investigations here (eg, Bartlett 1999). In this first phase, magnetometry, resistance and ground penetrating radar (using a SIR3000 systems with a 400 MHz antenna) surveys were undertaken. The resistance covered a total area of 8.5 ha specifically over the monuments of the Ceremonial Complex, including the area of the cursus to the west. The magnetometry survey covered a total area of 6.8 ha, covering the wider areas of the Sunburst and Woodhenge Monuments, including a section of the northern pit alignment. The radar survey covered a total area of 1.24 ha and focused on the Sunburst and Woodhenge Monuments specifically. These surveys provided an accurate mapping basis for the cropmarks and also supplied a wider context for the later phases of fieldwork.

The second phase of fieldwork was focused on the monuments themselves; the Sunburst Monument, the Woodhenge Monument, and a section of the northern pit alignment. These were surveyed with magnetometry, resistivity, and ground penetrating radar (GPR) at a higher resolution than the first phase surveys and then, following the stripping of topsoil, resurveyed in advance of excavation (Fig. 3). The three areas were each contained within the areas of the earlier geophysical work, and measured 25 x 15 m, 24 x 15 m, and 10 x 10 m respectively. In addition to proprietary processing of the geophysical data for both phases, the high-resolution radar and resistance survey data from the second phase of work were processed volumetrically and visualised using Mercury Computer Systems Amira v.4.1.1 software, integrating the Large Data Access (LDA) module. The modelling of the GPR data proved the most successful, enabling results to then be integrated into the GIS.

The third phase of fieldwork comprised the excavation of the three sites which were stripped for high-resolution geophysical survey. The first trench was positioned over the centre of the Sunburst Monument, containing the full extents of the ring ditch in addition to a number of the radiating pits. The second trench was positioned over the north-western section of the Woodhenge Monument including pits from each of the five concentric rings. The third trench was positioned over six of the pits of the northern pit alignment. The results from all phases of work were processed together using GIS, enabling integration with a variety of other landscape and archaeological data sources.

RESULTS FROM FIELDWORK

The cursus

The cursus on the western side of the Catholme Ceremonial Complex was investigated by geophysical survey without any subsequent excavation. Within this part of the complex, an area measuring 120 x 140 m was surveyed using resistivity. The results from this work revealed it to be the most disturbed region within the whole study area, with additional problems relating to extremely dry conditions. Despite this, a number of anomalies were visible in the data. In addition to the remains of modern agricultural activity, three sides of a rectangular feature were identified as high-resistance anomalies. This feature measured approximately 48 m (north–south) by 71 m (east–west), and there can be little doubt that this reflects the cursus identified on the aerial photographs (Fig. 4). Geophysical survey in the field to the east did not reveal any extension of this structure.

The Sunburst Monument

The initial phase of geophysical survey within the area of the Sunburst Monument covered a total area of approximately 4 ha, extending mainly to the north of the primary feature. The largest area was covered by magnetometry, with 3.5 ha surveyed using resistance, and an area measuring 80 x 80 m surveyed using GPR. The results revealed a number of features, although there was very little correlation between the different datasets. However, the area of the ring ditch at the centre of the Sunburst Monument was revealed in both the radar and magnetometry data. This feature measured 16 m in diameter, defined by a ditch approximately 2 m wide, and its overall form appeared to reflect detail visible on the aerial photography, thus providing more accurate

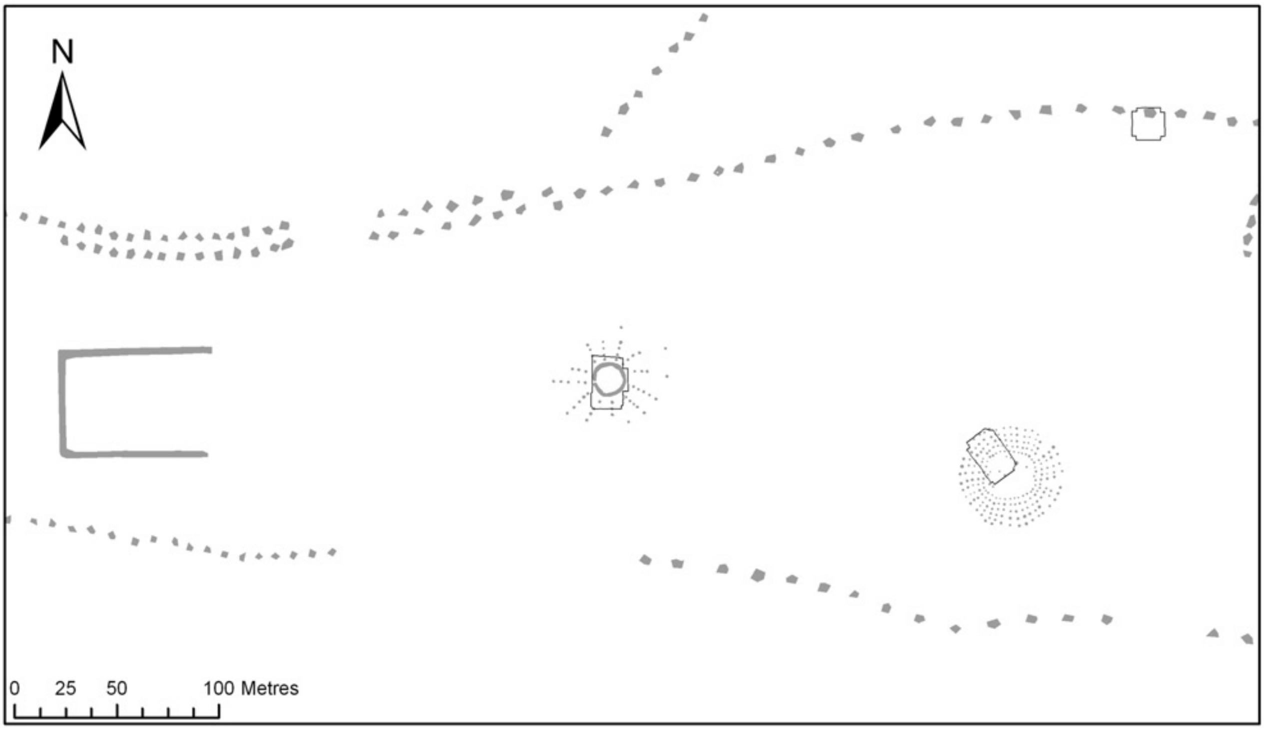

Fig. 3.
Location of the excavations within the Catholme Ceremonial Complex

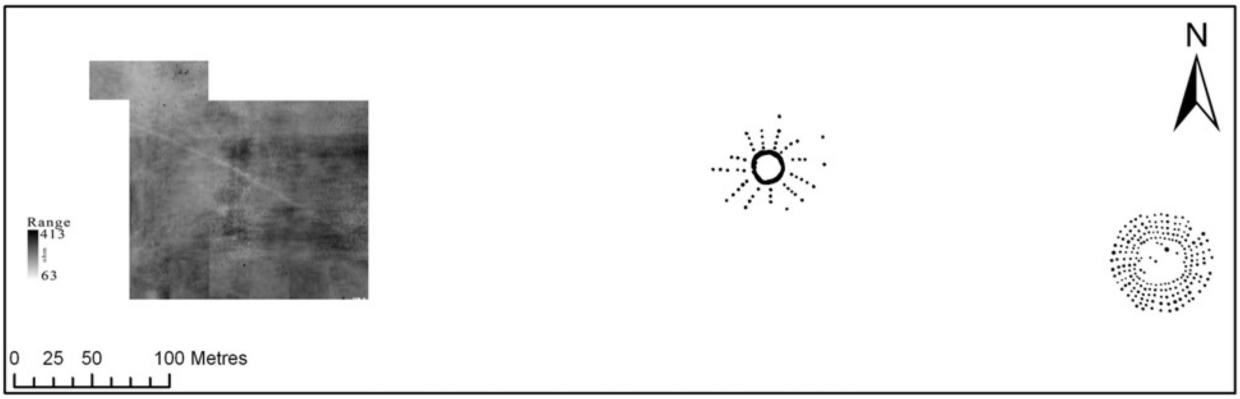

Fig. 4.
Resistivity results from the area of the cursus in relation to the Sunburst and Woodhenge Monuments

mapping of this feature, and a basis from which to focus excavation.

The second phase of geophysical survey was focused within the areas of exposed subsoil following machine stripping of topsoil over the area of the ring ditch at the centre of the Sunburst Monument. The three-dimensional modelling of the radar data in Amira provided a volumetric model of the ring ditch and numerous pit features (Watters 2007; Fig. 5). Within the data the ring ditch appeared to be segmented rather than continuous. A series of pits was visible in the data, beneath the ring ditch. Upon comparison with the plan generated from the re-rectified cropmarks, it appeared that this ring of pits underlying the ring ditch was aligned with the radiating pits. This indicated that the ring ditch had been dug in a way that effectively 'joined the dots' defined by the central ring of pits, indicating that it reflected a separate phase of construction. In addition, there was a central pit reflecting a dark feature visible on the aerial photography. Overall, the results from this modelling provided a basis for comparison with the excavated data.

The initial cleaning of the Sunburst Monument revealed that the ring ditch feature appeared to have two opposing entrances to the north and south (Fig. 6). The ditch was sectioned in 12 places around its circumference, revealing that there was at least one secondary phase of recutting. The primary ditch measured 2.2–2.3 m wide and between 0.55 m and 0.63 m deep. Other than a single clearly defined break in the ditch on its western side, the ditch appeared to have been continuous in its initial phase. The primary ditch had slumped on both sides indicating that it had both an internal and external bank. The main recut of the ditch, in contrast, appears to have been segmented, reflecting the breaks in its northern and southern sides, and indicated elsewhere along the ditch. Several pieces of worked flint were recovered from this secondary ditch fill. The segmented nature of this secondary ditch reflects the results seen in the final phase of the modelling of the radar data. A small pit measuring 0.7 m in diameter and 0.2 m deep was cut into a terminal in the later ring ditch in its south-western side some time after the segmented ditch had partially infilled. This small pit was itself slightly cut by a second pit, 0.6 m in diameter and 0.3 m deep. Both of these smaller pits were filled with black, charcoal-rich silt, although no bone survived within these deposits.

At the centre of the ring ditch, a pit measuring 2.4 m by 1.8 m was identified, reflecting the feature revealed by the geophysics and aerial photography. This was 0.4 m deep with two principal deposits. The contrast in colour and composition between the two highlighted the distinct shape of the lower deposit, and indicated that it reflected the gradual decomposition of an inhumation burial. The shape of the lower deposit indicated that the body had lain in a crouched position and a concentration of the lower pit fill towards the centre may be associated with saponification in the abdominal area of the body, since this would have been where the greatest weight of soft tissue was. A second concentration appears to indicate the position of the head. Associated with this burial were 30 sherds of Beaker pottery, most of them certainly and all of them probably from an S-profiled Beaker (Needham 2005, fig. 10) or Clarke's Northern/North Rhine group (Clarke 1970, 118–29). All of this material was found within the north-eastern quadrant of the pit, next to where the original position of the head is postulated to have been. In addition to the pottery, a number of worked lithics were recovered, also from this northern section of the pit (see below). Other areas of staining may indicate the positions of other, possibly organic, grave goods.

A number of other pits of varying sizes within the central area of the ring ditch were investigated, although none of these produced any datable material. One larger pit (measuring 3.1 x 1.5 m) displayed a U-shaped profile and contained four fills including much evidence for burning, including *in situ* burning within the uppermost fill.

A series of 13 smaller pits was excavated around the outside of the ring ditch. All but one of these were shallow, bowl-shaped features which produced no artefactual evidence. A single pit on the north-western side of the ring ditch displayed a different profile, being morphologically similar to the pits comprising the Woodhenge Monument, having vertical sides and a flat base (see below), indicating that it once may have held an upright post. Comparison with the re-rectified cropmarks defining the Sunburst Monument, and the modelled radar data showing the positions of pits beneath the ring ditch, indicates that at least seven of these features were part of the radiating pit alignments. It appears unlikely, therefore, that the majority of the pits defining this structure originally held upright posts.

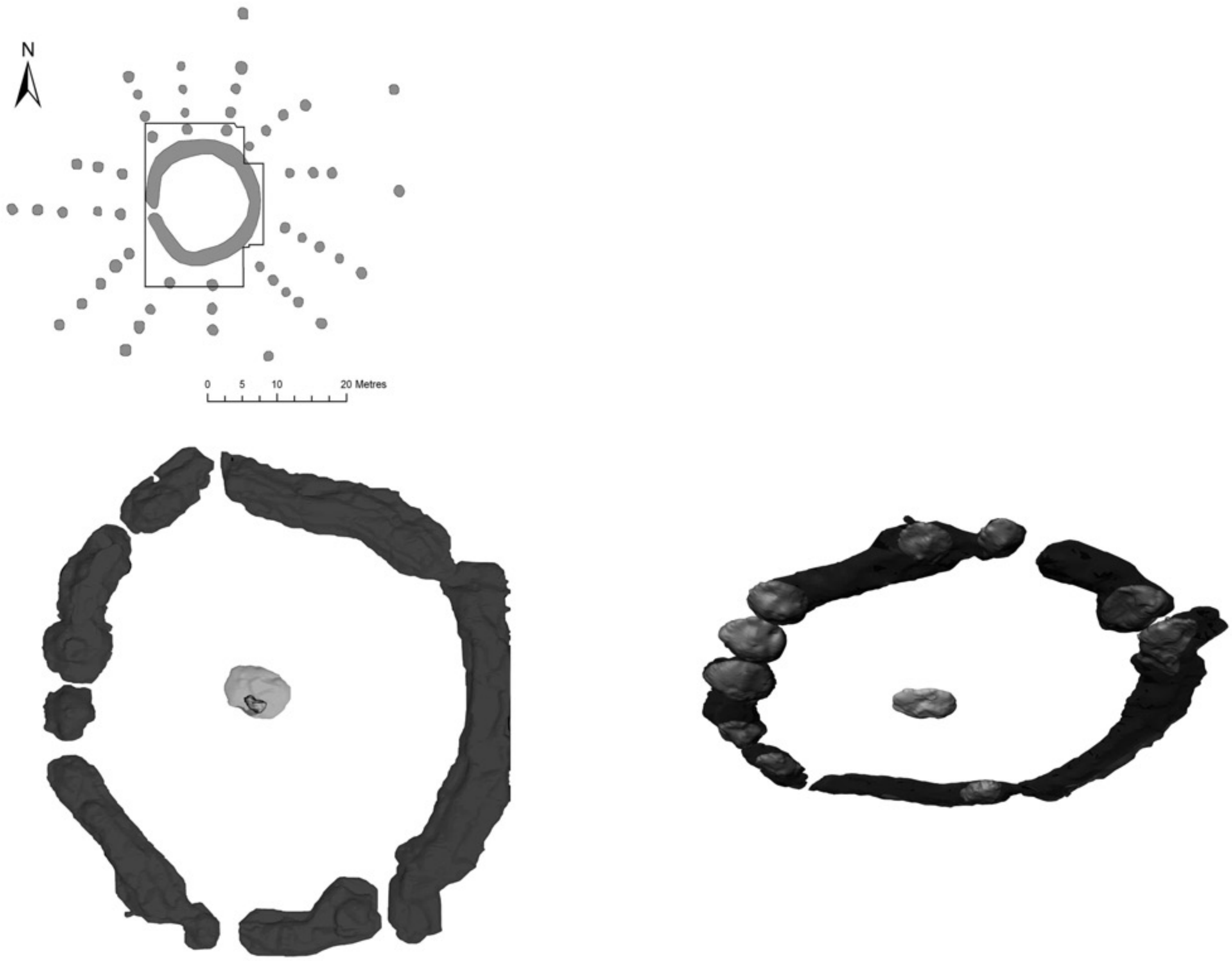

Fig. 5.
Modelling the GPR data from the Sunburst Monument. On the left the segmented ring ditch is visible in plan. On the right, the ring ditch viewed from beneath revealing the earlier circle of pits

The Woodhenge Monument

The initial magnetic survey of the wider area of the Woodhenge Monument covered an overall area of 2.5 ha, with an area of resistance measuring approximately 300 x 200 m, and an area of radar across the northern half of the monument in a block measuring 100 x 60 m. The results from this initial phase of work revealed various linear features indicative of multiple phases of agricultural activity. A number of small anomalies revealed in the radar data may reflect the pits of the Woodhenge Monument, but this could not be ascertained.

The second phase of geophysical survey within the machine stripped area (covering the north-western section of the site) identified considerably more archaeology, with the principal features visible in both the magnetic and resistance data. As for the data from the Sunburst Monument, the three-dimensional volumetric modelling of the radar data in Amira provided a direct correlation to the excavated features (Fig. 7).

A section of each of the five concentric rings of pits was revealed by the topsoil stripping. The rings were spaced approximately 2.5 m apart with the pits

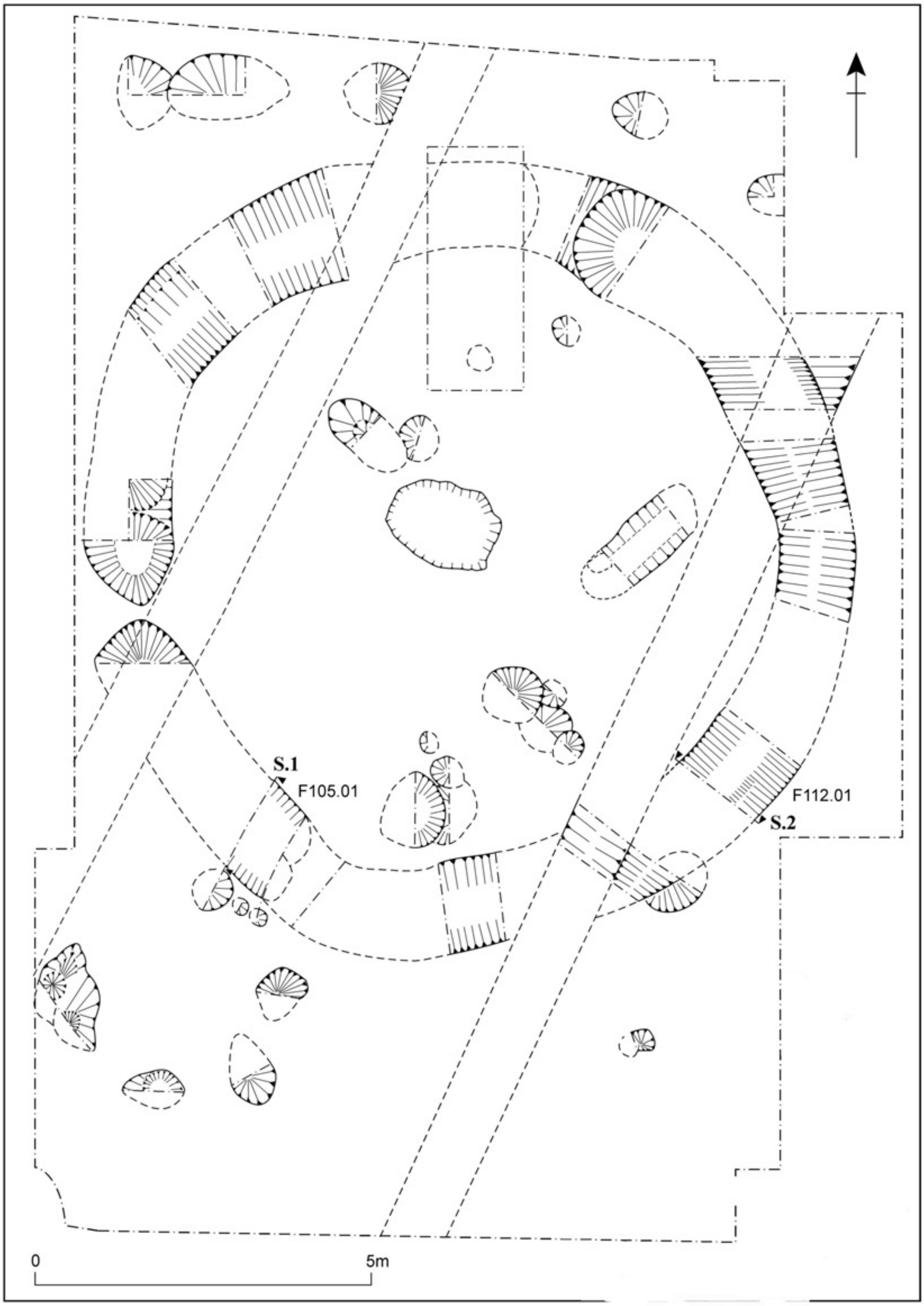

Fig. 6.
Plan of the excavated area of the Sunburst Monument

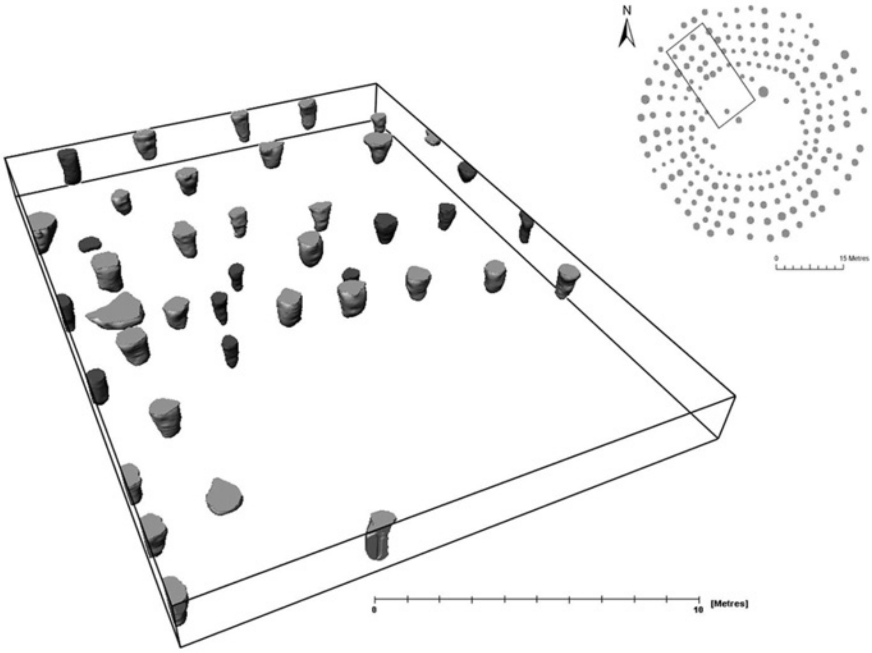

Fig. 7.
Modelling of the GPR data from the Woodhenge Monument showing the distribution and form of the post-pits

spaced variously (Fig. 8). Seven pits from the innermost ring were exposed in addition to a possible eighth which was truncated by a plough furrow. The pits were between 0.75 m and 1.5 m apart from each other within the ring, each being approximately 1.0 m in diameter and up to 0.8 m to 1.2 m deep with vertical sides. One pit in this circle contained evidence for an *in situ* post, 0.6 m in diameter, surviving as a stain with charcoal flecks.

Four pits were excavated within the second ring, although two possible additional features lay beneath a plough furrow. The pits were positioned 0.5–2.0 m apart, and were 0.8–1.1 m in diameter, and 0.8–1.0m deep with the same form as the innermost ring. Again, one of the pits contained evidence for a post in the form of staining. The exposed area of the third ring comprised five pits, although only three were excavated, spaced 0.5–2.0 m apart. These pits were around 1.0 m in diameter and 0.8–0.7m to 1.2 m deep.

The fourth ring comprised five pits, positioned 1.5–2.5 m apart. They averaged 1.0 m in diameter, and were 0.64–1.1 m deep, displaying the same vertical, flat-bottomed profile as the others. One post-hole contained charred wood and charcoal, 0.6 m in diameter and 0.2 m high. The fifth, outermost ring comprised four pits visible within the trench. These were positioned 1.5–3.0 m apart, were 1.0 m in diameter and 0.9–1.2 m deep.

The consistent profiles of the pits defining the five concentric rings of the Woodhenge Monument indicates that they originally held posts; an interpretation supported by the presence of decayed posts in three pits. It seems likely that the original structure consisted of concentric rings of posts and is therefore in contrast with the radiating pits of the Sunburst Monument.

Within the central area of the Woodhenge structure two shallow, irregular pits were recorded but no artefactual evidence was recovered and it is possible that these were natural features. The area of excavation was cut through by two plough furrows aligned north-east by south-west, truncating much of the archaeology within the area.

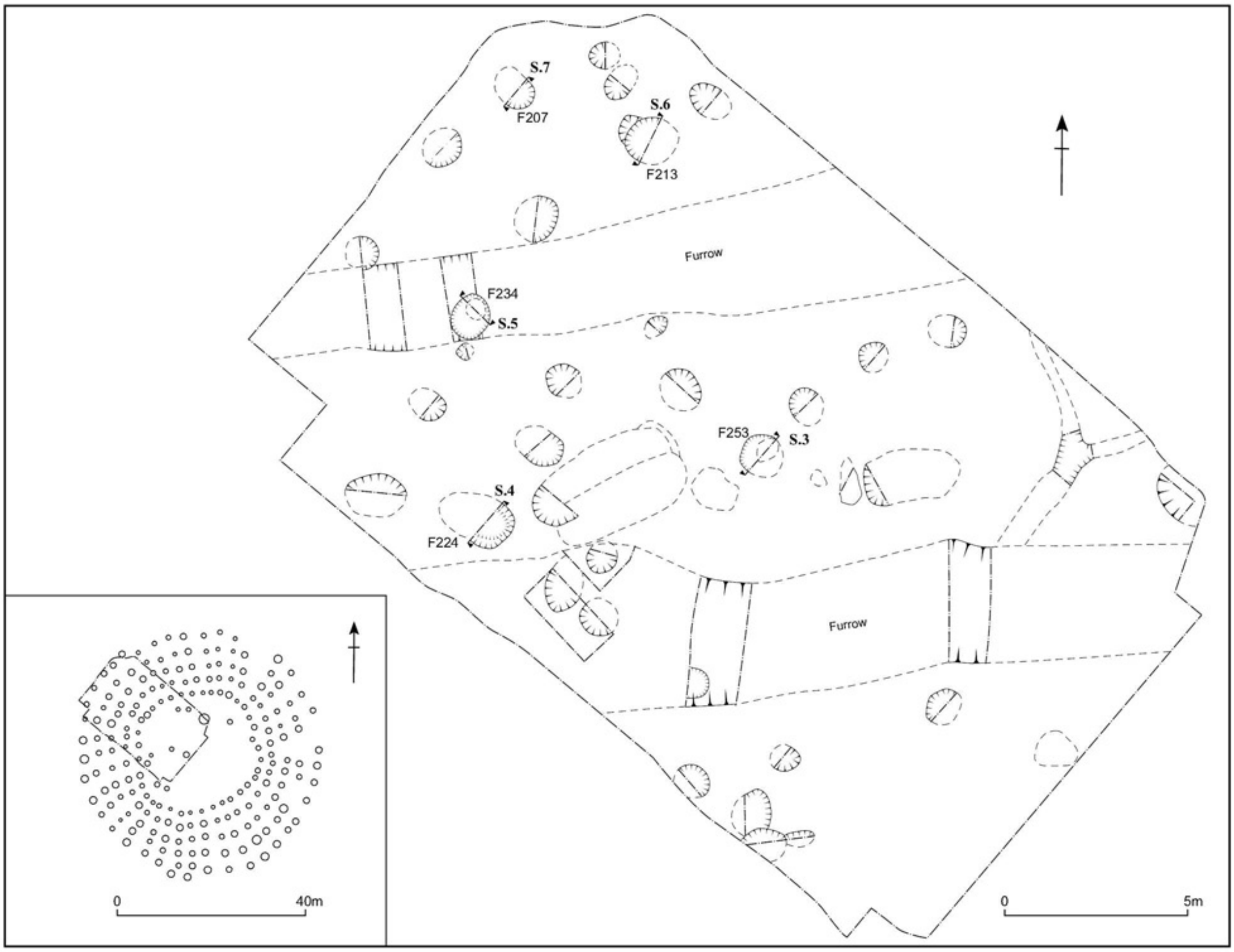

Fig. 8.
Plan of the excavated area of the Woodhenge Monument

The northern pit alignment

The initial geophysical survey of the area of the northern pit alignment was part of the same survey area as for the Woodhenge Monument, being within the same modern field. A number of linear features were recovered and some possible indication of the pit alignment was revealed by the resistance data. The geophysical survey following the stripping of the topsoil revealed greater detail, identifiable in both the resistance and GPR data. Five pits were contained within the geophysical area (which was marginally smaller than the size of the full trench). There was some indication of a secondary fill in one of them, revealed by the three-dimensional modelling of the radar data. In addition, a linear, ditchlike feature was identified to the south of the pits but following the same alignment (Fig. 9).

The excavations in this area revealed a total of six large, sub-rectangular pits forming an alignment oriented east–west. These were identified within the northern half of the trench, their positions accurately reflecting the features identified by the modelling of the radar data. The pits were 2.3–2.8 m in diameter and 0.8 m in depth, and were positioned very close together, with only 0.2 m between each of them. The likely truncation of the upper sections of these pits indicates that they may once have been even closer together. All of the pits contained similar fills, with a

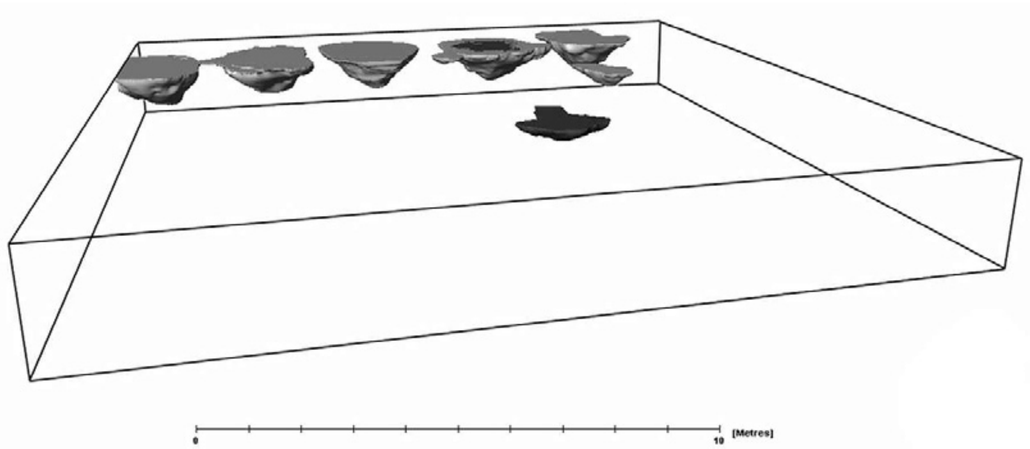

Fig. 9.
GPR modelling of the five pits of the northern pit alignment

basal unit of grey silty gravel overlain by a secondary fill of charcoal-rich material. There was no evidence for the placing of posts or other upstanding structures in any of the pits, nor were there any artefactual remains.

Two post-holes were excavated on the southern edge of the pit alignment, 0.4 m and 0.6 m in diameter respectively. These were both 0.3 m deep, and neither contained any datable material. Cutting across the trench to the south of the pit alignment was a plough furrow, reflecting the feature identified from the radar data.

RESULTS FROM THE POST-EXCAVATION ANALYSES

Pottery

(Ann Woodward)

All of the pottery recovered from the excavations of the Catholme Ceremonial Complex came from the area of the Sunburst Monument. Of the 32 sherds recovered, 30 came from the central burial pit. One sherd came from the primary fill of the northern section of the ring ditch, and one was unstratified.

The pottery from the central burial feature was recovered from two different levels within the pit (see above). The lower level contained 26 decorated sherds (weighing a total of 209 g) and the upper level contained four decorated sherds (7 g). All of these sherds probably derive from the same vessel (Fig. 10). The sherds include rim, neck, and body fragments from a large Beaker which would have been a tall and slender pot with a sinuous profile, simple rim, and a complex scheme of decoration arranged in horizontal zones, executed using short tooth-comb impressions. This decorative scheme includes elements which belong to the numbered motif types defined by Clarke (1970, 424–8), including motifs 1, 2, 5, 7, 9, 12, ?17, and 29. Macroscopically, the fabric of this vessel appears to contain grog along with rock inclusions of varying colour, including olivine basalt (up to 2.7 mm in diameter) which may originate in Scotland, but which is present (but rare) in Midlands deposits in the form of glacial erratics (see below).

The position of the Beaker in relation to the interpreted burial indicates that it was originally deposited as an accompaniment to an inhumation burial. The fact that much of the Beaker is missing might be explained if, as in some other recorded cases such as Lockington in Leicestershire or Whitemoor Haye in Staffordshire (Woodward 2002), only part of the vessel was ever deposited. However, the varying levels of abrasion present on the sherds, and their scattering within the north-eastern quadrant of the pit suggest that other processes may have occurred. It is possible that the original burial was robbed, and the Beaker broken. Some sherds may have been taken away and others left. The sherds that were left at the surface would have become more abraded than the others, before re-entering the feature, either by

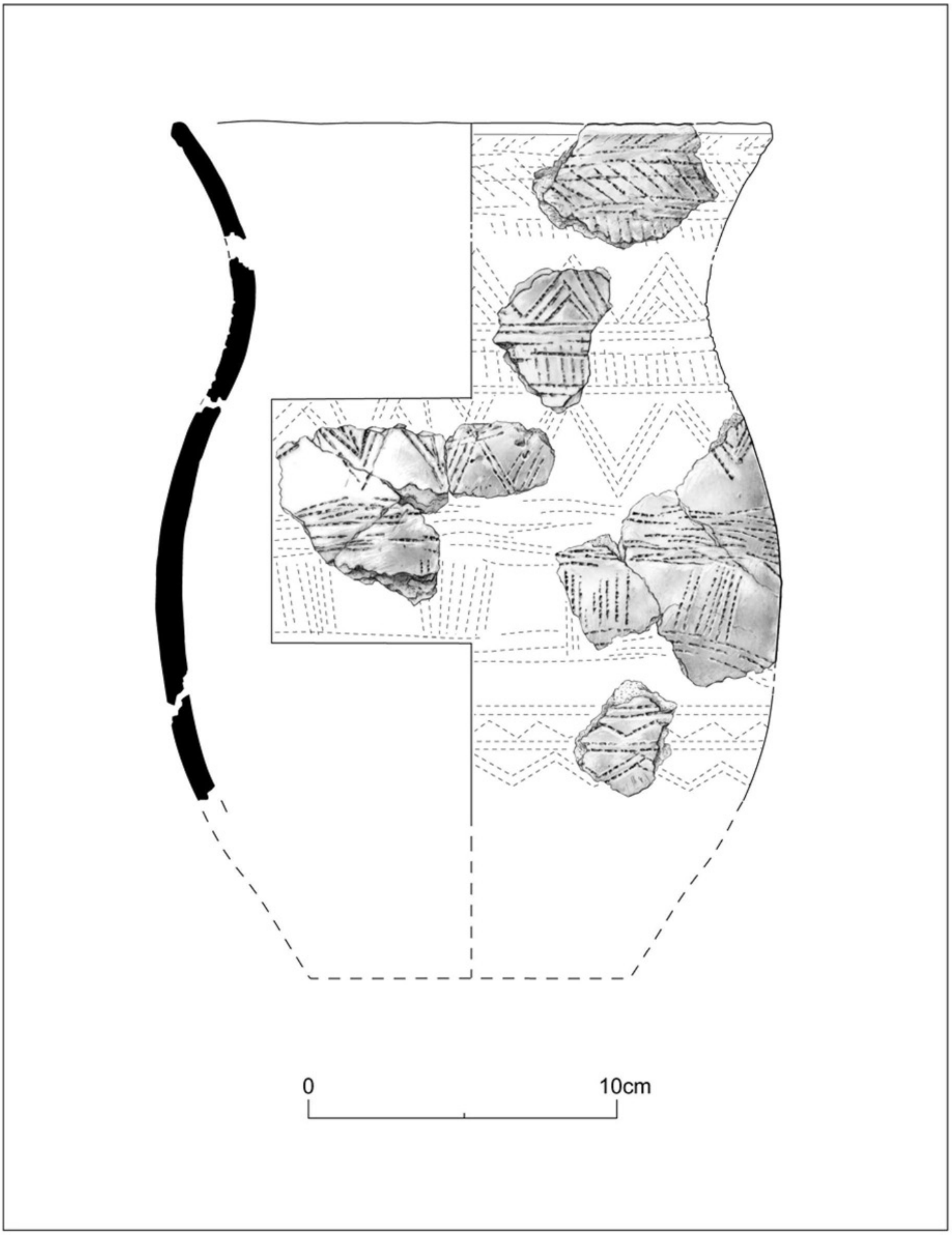

Fig. 10.
Reconstructed Beaker vessel

natural silting or during an act of deliberate infilling or levelling.

The single sherd from the primary fill of the recut of the ring ditch is a very abraded wall fragment (weighing 6 g) in a grog fabric with rare sand. This sherd is probably early Bronze Age in date, although of an indeterminate vessel type. The unstratified sherd from the Sunburst Monument trench is a plain, very abraded wall sherd (4 g) in a soft, sandy fabric with rare quartz inclusions. This sherd was probably part of a late Neolithic or early Bronze Age Beaker

The Beaker appears to belong to the Northern/North Rhine group as defined by Clarke (1970, 118–29), having a rounded profile, a belly diameter greater than its rim diameter, a decorative scheme that fills the neck above a zoned belly, the use of simple motifs alongside filled triangles (eg, motif 10), and the chequer motif (motif 9). This places the Beaker also within Case's Northern Group B (Case 1993, figs 9–11) and Needham's group of S-profile Beakers (SP) (Needham 2005, fig. 10). Vessels of this type probably date from after 2000 cal BC, and are normally found north of the Trent and Humber (Clarke 1970, 122), although examples are known from Oxfordshire, Gloucestershire, and southern Wales.

Pottery petrography

(Rob Ixer)

Three sherds from the Beaker recovered from the central pit burial of the Sunburst Monument were petrographically analysed as polished thin sections. All three of the sherds were well made with a high preparation index and two were probably from the same pot based on similarities in their firing characteristics. The third may also have been from the same pot, but was too narrow for accurate comparison, although all three displayed identical temper. The pots were made from a naturally clean or cleaned clay and there was neither grog nor bone inclusions. All three had been tempered with olivine basalt.

It is possible that the clay used for the pottery manufacture derived from local sources. Certainly, the clay came from a different source to the olivine basalt temper. This basalt is not from any of the Derbyshire or West Midlands basalts or dolerites, nor from the Great Whin Sill in northern England, but it is more likely to have come from Scotland. It is possible that this material was collected from glacial erratics which, although rare within the tills of central England, do carry Lower Carboniferous olivine bearing basalts from the Scottish Midland Valley. The temper is also similar to the Tertiary basalts of the Inner Hebrides and Antrim Plateau, although neither of these has been found as erratics in central or southern England. It could be suggested that, even if it is from an erratic, the temper has been carefully chosen and worked. Were the pot an import, then it is non-regional. The morphological characteristics of the vessel (see above) indicate that it is of a northern English type, which indicates that this temper is more likely to be from Scottish erratics and perhaps transported to the West Midlands.

Lithics

(Lawrence Barfield)

A total of 31 struck lithics were recovered from the area of the Catholme Ceremonial Complex, of which 29 came from the area of the Sunburst Monument. From the central grave pit, a discoidal scraper made from mottled brown flint was recovered which may have been a grave good (Fig. 11: 2). In addition, seven flakes were collected from the pit, mostly of a glossy black to dark grey flint, suggesting a single flint source different to the normal grey–brown pebble flint characteristic of many sites within the West Midlands (Fig. 11: 5). One of these flakes has been retouched.

The recut of the ring ditch surrounding the central grave pit produced two scrapers, a core, and 15 flakes (Fig. 11: 1, 3, 4, 6–9). One of these scrapers is made from a dark brown flint with an unrolled cortex whilst the second was manufactured from a deliberately selected thick overshot flake in which the thickness increases towards the scraping end. This second scraper has been resharpened, producing a 90% angled, irregular stepped fractured edge. It is made from a rich black flint with a white cortex, comparable in terms of both type and material with scrapers from other sites across the West Midlands and Wales, for example from late Neolithic contexts in the Walton Basin in Dyfed (Bradley 1999) and Barford in Warwickshire, indicating some level of scraper trade. Other finds of black chalk flint have been noted from the West Midlands (Barfield 1993) and similar long distance transportation of flint has been suggested in the Cotswolds (Saville 1982). The core from the ring ditch is made from a large flake with pronounced negative scars on both sides. The presence of deep hammer struck bulbar scars on its

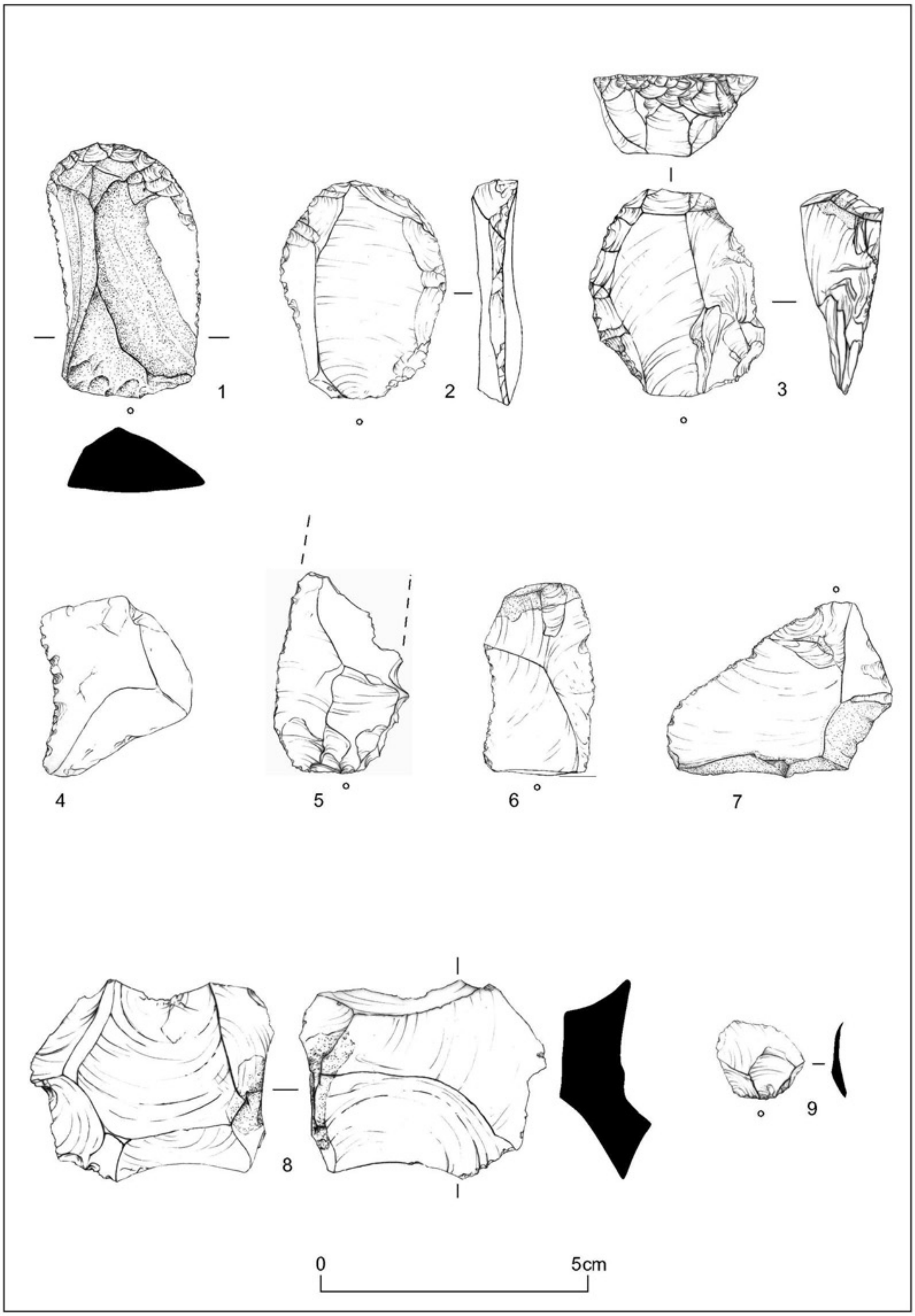

Fig. 11.
Flint artefacts

two main faces which resulted in small oval bulbar flakes suggests that it is probably a core used specifically for the production of thumbnail scrapers. The 15 flakes from the ring ditch, including one retouched example, are similar to those from the central grave pit, being from a glossy black to dark grey flint, uncharacteristic of assemblages in the West Midlands, indicating a non-local origin.

Only three flakes were recovered from the area of the Woodhenge Monument. In contrast with the flakes from the Sunburst Monument, these are all made from an orange-stained, local gravel flint. These include a serrated flake from an unstratified context. This piece shows no evidence of intentional or conchoidal fracture, but has been split and, on one resulting sharp edge, has a series of six regularly spaced notches, indicating an intentional, if *ad hoc*, functional tool.

The materials used for the production of flint across the Catholme Ceremonial Complex fall into three categories. The first is represented only in the assemblage from the Woodhenge Monument and consists of pebble flint characteristic of the local region. In contrast, the second category is represented by the flakes from the Sunburst Monument which reflect a different, non-local flint source. The third category is represented by the scrapers which were all constructed on large blanks of good quality flint presumably imported from primary chalk sources as readymade tools.

The Beaker date suggested by the pottery (see above) is not strongly reflected by the lithic assemblage. Only the core from the ring ditch of the Sunburst Monument, indicative of thumbnail scraper production, might indicate a Beaker date, and it can be noted that flakes used as cores are also a Beaker feature elsewhere in Europe (Furestier 2004). The scrapers are more difficult to date accurately. The large discoidal scraper from the central grave pit is of a form found throughout the Neolithic and earlier Bronze Age. Edge trimmed flakes are similarly common in assemblages from the Mesolithic to the Bronze Age (*cf.* Saville 2006). The assemblage gives the impression of a random collection of utilised and non-utilised pieces and it contrasts with some of the apparently more deliberately selected grave items found at Beaker sites in the region which commonly have a higher proportion of tools. The general similarity of raw materials from the Sunburst Monument indicates a single area of source procurement and thus, along with the concentration of finds from the central pit and the ring ditch, absent from the Woodhenge Monument, a certain homogeneity of the total assemblage.

Charred plant remains

(Pam Grinter and Wendy Smith)

A total of 36 samples were collected and processed from the excavations for the analysis of charred plant remains, and for the identification of samples for charcoal analysis (see below). Within these samples, charred plant remains were sparse and generally poorly preserved. The samples from the Sunburst Monument revealed oak (*Quercus* sp.) in the majority of samples from the ring ditch. Hazel (*Corylus avellana*) was identified from both the central grave pit and from the possible cremation pits cut into the south-western section of the ring ditch. Despite the quantities of charred wood, very few other charred plant remains were present. The exception to this was a sample from the recut of the ring ditch on the western side of the monument in the position of the southern terminus of the western break. This sample was dominated by cherry (*Prunus avium* L./*P. padus* L.) stones which may have come with the wood charcoal, but could also reflect the intentional deposition of material.

Charcoal analysis

(Rowena Gale)

Of the 36 samples collected for the analysis of charred plant remains, 13 were appropriate for the full analysis of charcoal; six from the Sunburst Monument and seven from the Woodhenge Monument. The condition of the charcoal in these samples varied from firm and well-preserved to poor and friable, with one example of partially vitrified charcoal. The samples were prepared using standard methods (Gale & Cutler 2000) and then analysed using a compound microscope at magnifications of up to x400, and matched to reference slides of modern wood.

The charcoal from the Sunburst Monument came from four sources: the ring ditch, the central grave pit, a large pit on the eastern side of the grave pit, and a pair of pits recutting the south-western side of the ring ditch. The charcoal from the primary fill of the ring ditch consisted of numerous fragments of birch (*Betula* sp.), probably from fairly wide roundwood, and provided material for radiocarbon dating (see below). A large deposit of charcoal was recovered from the fill of the recut ditch consisted of alder (*Alnus glutinosa*) roundwood, again yielding material for radiocarbon dating (see below). It seems likely that the charcoal within the ring ditch deposits was derived from a hearth or other area of burning on site nearby. The lack of any food remains indicates that this burning was not related to domestic use or feasting.

Charcoal from both the deposits filling the central grave pit is very similar in character and includes mostly birch (*Betula* sp.), but also alder (*Alnus glutinosa*) and oak (*Quercus* sp.). Hazel (*Corylus avellana*) was also recorded. The association of charcoal within inhumation deposits is well known but its precise function less so. It is possible that fire (flaming branches or burning coals) was included in the grave goods or that charcoal was scattered for cleansing/fumigation purposes.

The large rectilinear pit directly to the east of the central grave pit produced charcoal from its upper fill. Evidence for *in situ* burning here is complemented by an assemblage of cindery, degraded charcoal consisting entirely of pine (*Pinus sylvestris*). In view of the ritual nature of the monument, it is highly probable that pine was specially selected for burning. Evergreen trees, especially pine and yew (*Taxus* sp.) have long associations with death, immortality and the protection of the dead (Cornish 1946; Cooper 1978), and proximity of this pit to the central burial may be relevant.

The charcoal from the small pits cutting the south-western side of the ring ditch consists of alder, the hawthorn/*Sorbus* group (Pomoideae), and narrow hazel roundwood. The fills of these pits were initially interpreted as possible cremation burials, although no bone was recovered (see above). None of the charcoal examined appears to be particularly substantial and thus perhaps not typically representative of pyre wood.

The Woodhenge Monument produced seven samples suitable for the analysis of charcoal. The samples came from the innermost ring, and the third and fourth rings of pits. All of these samples produced large quantities of oak, consisting of mostly heartwood from large wood, strongly supporting the interpretation that the pits were structural, holding large posts. Small amounts of sapwood provided suitable material for radiocarbon dating (see below). The rates of growth of the trees were variable, although much of the wood was from slow-grown trees, indicating that they were from trees of some maturity or that they grew in closed woodland or stressed environment. The flat bottoms of the posts indicate that the conversion of timbers did not involve tapering the bases. It is not clear whether the charring of the posts resulted from charring the posts prior to insertion in the ground to deter rotting (which would be cumbersome with such large timbers) or whether the structure burnt down or was razed to the ground.

The spatial distribution of different species and types of wood across the site indicates different functions. The charcoal from the Woodhenge Monument comprises oak large-wood indicative of structural posts, whereas the charcoal from the Sunburst Monument comprises multiple species, perhaps indicative of hearths or burning events. The presence of pine charcoal within the pit next to the central grave pit may be significant if the two are contemporaneous. The presence of large oak timbers within the Woodhenge Monument indicates the presence of this wood, presumably on the higher, drier areas of the landscape as opposed to the floodplain area. The narrow tree-rings on this material indicate that this was mature woodland, or else closed canopy. All species represented could have grown within the local environment.

Radiocarbon dating

(W. Derek Hamilton, Peter Marshall, Gordon Cook & Christopher Bronk Ramsey)

Nine samples were submitted for dating by Accelerator Mass Spectrometry (AMS) (Figs 12 & 13; Table 1). Four samples of charcoal were submitted to the Scottish Universities Environmental Research Centre, East Kilbride (SUERC) and were prepared using the methods outlined in Slota *et al.* (1987) and measured as described by Xu *et al.* (2004). Five samples of charcoal were submitted to the Oxford Radiocarbon Accelerator Unit (ORAU). These were prepared according to the methods outlined in Hedges *et al.* (1989) and measured as described in Bronk Ramsey *et al.* (2004).

The calibrations of these results, relating the radiocarbon measurements directly to calendar dates, given in Table 1 and in outline in Figure 13 have been calculated using the calibration curve of Reimer *et al.* (2004), using OxCal (v3.10) (Bronk Ramsey 1995; 1998; 2001). The calibrated date ranges given in Table 1 have been calculated using the maximum

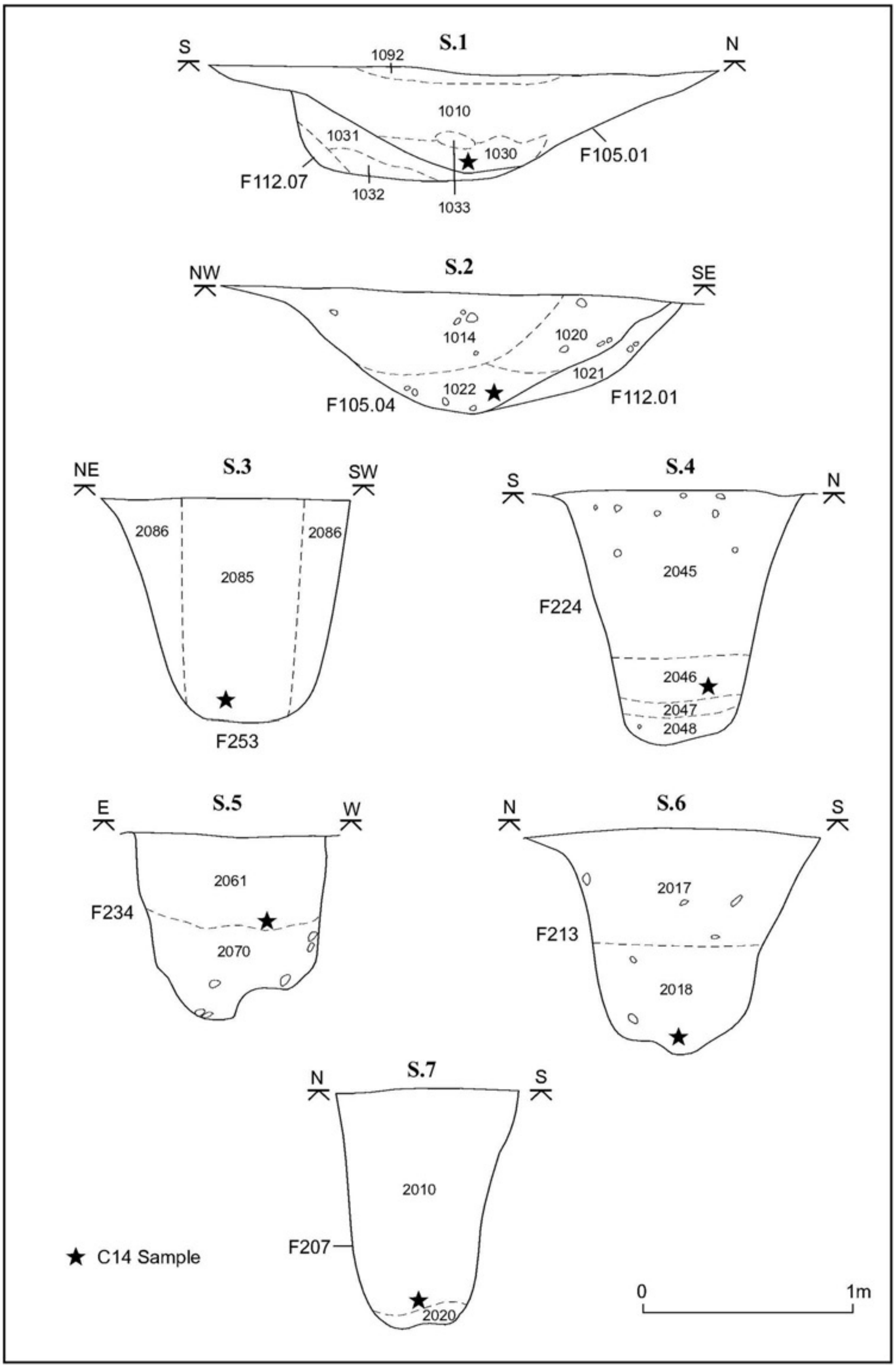

Fig. 12.
Sections showing locations of radiocarbon dates. S1 & S2 show profiles across the ring ditch of the Sunburst Monument. S3–7 show profiles across post-holes of the Woodhenge Monument

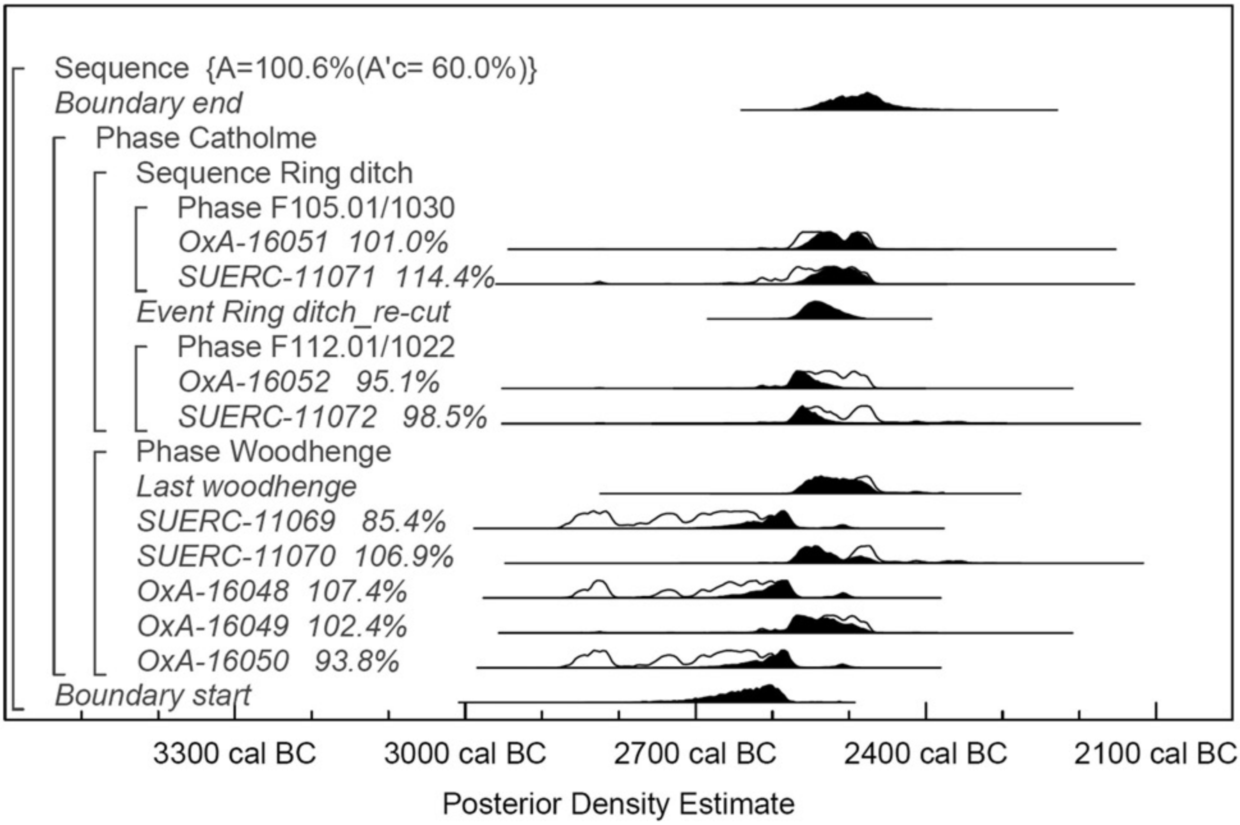

Fig. 13.
Radiocarbon results

intercept method (Stuiver & Reimer 1986) and are quoted in the form recommended by Mook (1986), with the end points rounded outwards to 10 years. The graphical distributions of the results shown in Figure 13 are derived from the probability method (Stuiver & Reimer 1993). The radiocarbon dating programme was aimed at providing dates for the ring ditch of the Sunburst Monument in order to compare it with artefactual data, and for the Woodhenge Monument in the absence of artefactual data. Samples were selected to identify short-lived material which was not residual. All resulting samples consisted of single entities (Ashmore 1999) recovered from post-pit and ditch fills. Where possible, duplicate samples were submitted.

Bayesian modelling of radiocarbon results

A Bayesian approach has been adopted for the interpretation of the chronology from the site (Buck *et al.* 1996). Although the simple calibrated dates are accurate estimates of the dates of the samples, this is usually not what archaeologists really wish to know. It is the dates of the archaeological events which are represented by those samples that are of interest. Absolute dating information in the form of radiocarbon measurements can be combined with the relative information provided by stratigraphic relationships between samples to provide estimates of the dates of activities (Fig. 13).

The technique used is a form of Markov Chain Monte Carlo sampling, and has been applied using the

TABLE 1: RADIOCARBON DATES FOR THE SUNBURST & WOODHENGE MONUMENTS

Lab. no.	*Sample ref.*	*Material (charcoal)*	*Context*	*Radiocarbon Age BP*	*$\delta^{13}C$ (%)*	*Calibrated date range cal BC (95% confidence)*	*Posterior density estimate cal BC (95% probability)*
			Sunburst monument				
OxA-16052	F112.01/1022(A) Fig.11 S1	Single frag. *Betula* sp. prob. fairly large roundwood	Primary fill ditch (F112.01/1022)	4011±30	-25.6	2620–2460	*2620–2510*
SUERC-11072	F112.01/1022(B) Fig.11 S1	Single frag. *Betula* sp. prob. fairly large roundwood	Primary fill ditch (F112.01/1022)	3980±35	-26.4	2580–2450	*2620–2510*
OxA-16051	F105.01/1030(A) Fig.11 S2	Single frag. *Alnus glutinosa* roundwood	Primary fill ditch recut (F105.01/1030)	3997±30	-26.5	2580–2460	*2560–2470*
SUERC-11071	F105.01/1030(B) S2	Single frag. *Alnus glutinosa* roundwood	Primary fill ditch recut (F105.01/1030)	4020±35	-26.2	2630–2460	*2560–2470*
			Woodhenge monument				
OxA-16050	F253/2085 Fig.11 S3	Single frag. *Quercus* sp. sapwood	Upper fill post-pit (F253/2085), innermost (1st) ring	4108±31	-25.7	2870–2500	*2680–2560 (87%) or 2530–2490 (8%)*
OxA-16049	F224/2046 Fig.11 S4	Single frag. *Quercus* sp. sapwood	Middle fill post-pit (F224/2046), 3rd ring	4018±30	-25.5	2620–2470	*2600–2470*
SUERC-11070	F234/2061 Fig.11 S5	Single frag. *Quercus* sp. sapwood	Single fill post-pit (F234/2061), 4th ring	3975±35	-25.4	2580–2410	*2580–2460*
OxA-16048	F213/2018 Fig.11 S6	Single frag. *Quercus* sp sapwood	Primary fill post-pit (F213/2018), 4th ring	4095±30	-25.6	2860–2500	*2670–2560 (85%) or 2530–2490 (10%)*
SUERC-11069	F207/2010 Fig.11 S7	Single frag. *Quercus* sp. sapwood	Single fill post-pit (F207/2010), outermost (5th) ring	4115±35	-24.6	2880–2500	*2680–2560 (86%) or 2530–2490 (9%)*

program OxCal (v3.10) (, which uses a mixture of the Metropolis-Hastings algorithm and the more specific Gibbs sampler (Gilks *et al.* 1996; Gelfand & Smith 1990). Details of the algorithms employed by this program are available from the on-line manual or in Bronk Ramsey (1995; 1998; 2001). The algorithm used in the model can be derived from the structure shown in Figure 13.

Samples from the primary ditch fill of the Sunburst Monument (SUERC-11072; 3980±35 BP and OxA-16052; 4011±30 BP) are statistically consistent (T'=0.5; v=1; T'(5%)=3.8; Ward & Wilson 1978) and could therefore be of the same actual age. Two measurements on samples from the recut ditch (SUERC-11071; 4020±35 BP and OxA-16051; 3997±30 BP) are also statistically consistent (T'=0.2; v=1; T'(5%)=3.8; Ward & Wilson, 1978) and could also be of the same actual age. Analysis of the dates from the ring ditch provides an estimate for the recutting of the ring ditch of *2570–2490 cal BC (95% probability; Ring ditch_recut*; Fig.13) and probably *2560–2510 cal BC (68% probability)*.

A single sample of oak sapwood was dated from the innermost ring of pits of the Woodhenge Monument (OxA-16050; 4108±31 BP). No material from the second ring of pits was suitable for radiocarbon dating, but a single sample from the third ring was datable (OxA-16049; 4018±30 BP). Two samples were dated from the fourth ring of pits (OxA-16048; 4095±30 BP and SUERC-11070; 3975±35 BP), and one from the outermost (fifth) ring (SUERC-11069; 4115±35 BP). The five measurements from the Woodhenge Monument are not statistically consistent (T'=14.0; v=4; T' (5%)=9.5; Ward & Wilson, 1978). However, if one of the samples from the fourth ring (SUERC-11070) is excluded, the remaining four measurements are statistically consistent (T'=6.3; v=3; T'(5%)=7.8; Ward & Wilson, 1978), and could therefore be of the same actual age. The analysis of the dates from the Woodhenge structure provides an estimate for its construction of *2570–2470 cal BC (95% probability; Last Woodhenge;* Fig. 13) and probably *2550–2480 cal BC (68% probability). This* is based on the assumption that the estimate of the last dated event from the Woodhenge (ie, post being felled) provides the best estimate for its construction. The outlying second sample from the fourth ring (SUERC-11070) may indicate a later addition or repair to the site. Overall, however, the results suggest that the recutting of the Sunburst Monument ring-ditch and the erection of the Woodhenge posts were contemporary events.

DISCUSSION

Narrative

Taking the cursus to have been built in the late 4th or early 3rd millennium cal BC and the central feature of the Sunburst monument to have been dug after *c.* 2000 cal BC, the Catholme Ceremonial Complex represents over a millennium of activity (Fig. 14), within a wider landscape which extends back to the earlier Neolithic and forward into the Iron Age and later. The diffuse nature of monumentality within the landscape of the Trent/Tame confluence became more focused towards the end of the 4th millennium cal BC. The dispersed nature of the earlier causewayed enclosure landscape was reflected by the distributed cursus landscape during the later 4th or early 3rd millennium cal BC (*cf*. Barclay & Bayliss 1999). At some point during the first half of the 3rd millennium cal BC the focus for activity became defined within the area directly north of the confluence, linked with one of the cursuses. Whilst this cursus was not excavated, its form revealed by cropmarks and resistance surveys indicates that this feature is of a type common within the region.

The digging of the radiating pit-alignments (the Sunburst Monument) to the east of the cursus during the later Neolithic period marked the start of the ceremonial focus at Catholme, in addition to creating a unique prehistoric monument. Perhaps the closest parallel to the plan of this site is the Period III phase of the barrow at North Mains, Strathallan, in Perthshire, Scotland (Barclay 1983). Here a total series of radiating lines of stake-holes interpreted as sections of fencing extending from a central ring of stake-holes, approximately 7 m in diameter and interpreted as forming the framework for the mound (Barclay 1983, 233). The plan of the Sunburst Monument is extremely reminiscent of the North Mains barrow, although the radiating lines of the former never contained upright posts.

It is possible that the Sunburst Monument was sited in relation to the existing cursus, on the basis of alignment and positioning. The newly established focus of activity at Catholme was revisited shortly afterwards when the internal ring of pits was remodelled to form a 13 m diameter (internally) hengiform structure with a western entrance and both internal and external banks. For this hengiform structure to faithfully follow this inner ring of pits (identifiable in the radar data) indicates that they were

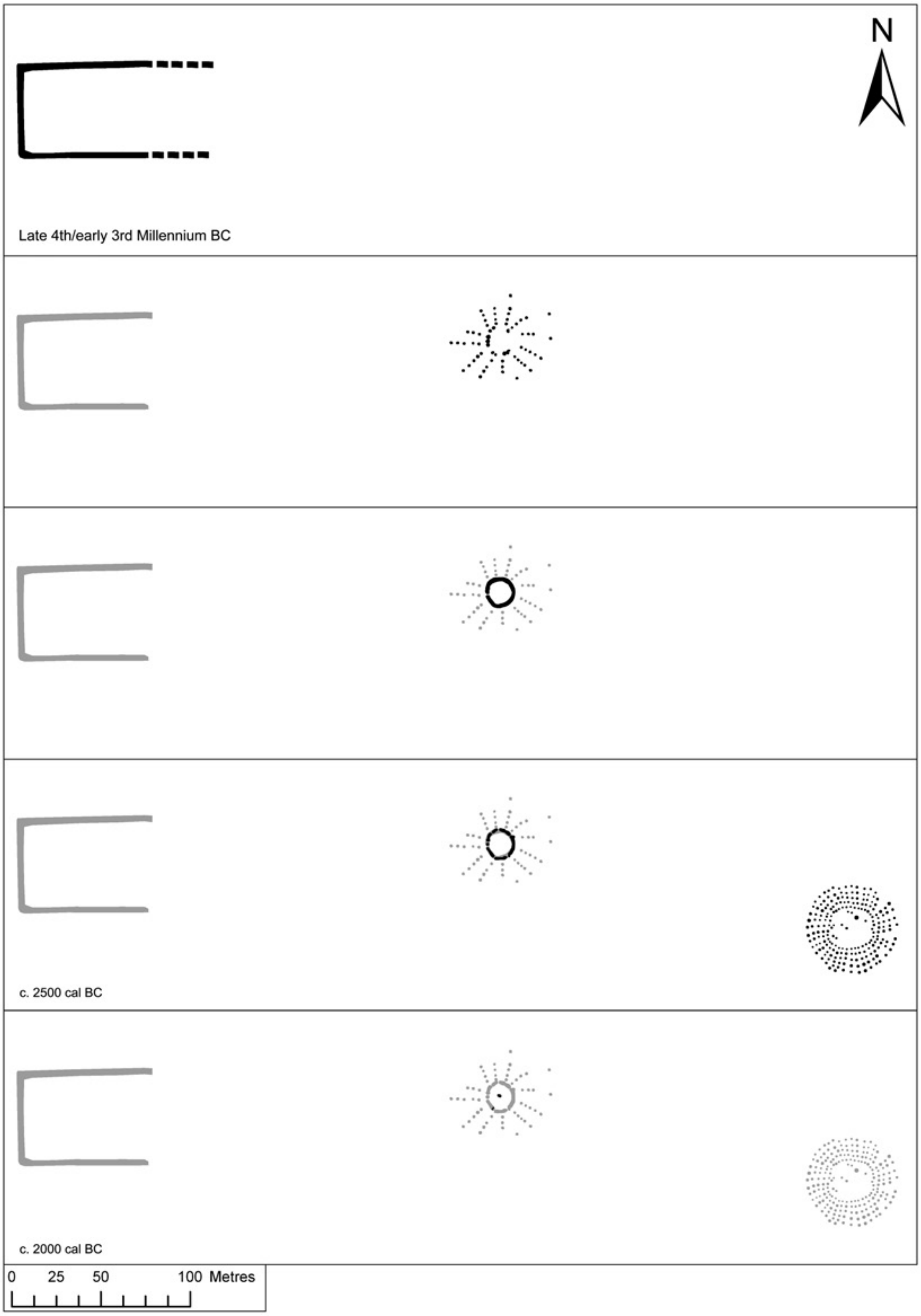

Fig 14.
Phasing of the Catholme Ceremonial Complex

still visible on the ground. The hengiform structure was devoid of finds.

Following a period of bank slumping and silting, the hengiform ditch was recut to form a segmented ditch, which contained two scrapers, a core, and 15 flakes, in addition to a single sherd of possible early Bronze Age pottery. The raw material used for the flakes and core was not local and perhaps from mined sources, and the scrapers derived from good quality chalk flint, perhaps imported as finished tools, indicating both trade and cultural significance. The fill of the segmented ditch included the deposition of charcoal from fires presumably on or near the site. Whilst the majority of this material consisted of wood, the placing of cherry stones in one of the western terminals of the ditch may be significant as an intentional deposit, although it is possible that this material came by chance with the fire wood. The cutting of the segmented ditch coincided with the construction of the Woodhenge Monument, consisting of five rings of large, upright oak posts. Radiocarbon dating for both of these events suggests both took place in the *26th or 25th centuries cal* BC. It is likely that these events were broadly synchronous with the construction of hengiform monuments across the region.

Approximately 500 years later, at a time as a rapid expansion of burial monument activity in the region, the site was re-used with the insertion of a crouched inhumation at the centre of the segmented ditch. Pottery associated with this burial indicates a Beaker date at some time shortly after 2000 cal BC. The pottery also indicates either specifically selected material for its manufacture, or else a movement of pottery over great distances, perhaps as far as Scotland. A number of other undated features may be related to this phase of activity. It is possible that an area of burning directly east of the burial may have taken place at this time, given the spatial positioning and separation between the two features, although this may also reflect earlier activity relating to the charcoal infill within the ditch. The insertion of charcoal into two small pits possibly took place during this last phase, or perhaps slightly later. This may have been associated with funerary rites such as cremation, although the assemblage of wood charcoal is inconsistent with pyre material. It is perhaps significant that hazel was present within both the central grave pit and the smaller pits to the south-west. It is likely that the Woodhenge Monument would not have been visible on the ground by this time.

The final phase of activity within the Catholme Ceremonial Complex is characterised by the formalisation of its boundaries. This is represented by the pit alignments to the north and south of the main features. Excavations of these features produced no datable material. It seems likely that they represent later prehistoric activity. They are not self-contained monuments and are, therefore, unlike the Neolithic and early Bronze Age examples of double pit alignments. Similarly, the pits are very close together which is more characteristic of later alignments compared with the more widely spaced pit avenues of earlier periods. It seems most likely that these features are demarcating space within the landscape, reflecting numerous other pit alignments within the valley to the north and south (eg, Coates 2002). However, a number of observations indicate that these pits might be formalising an earlier boundary to the Ceremonial Complex. First, the symmetry of the northern and southern pit alignments, with the Complex at the centre, indicates that the boundaries were established together when the monuments were still actively being used, or at least retained significance in the landscape. Secondly, the boundaries link the higher land to the west (and the cursus) to the floodplains to the east (and ultimately the positions of the earlier Neolithic causewayed enclosures). It seems likely, therefore, that these features formalised much earlier boundaries, perhaps representing the edge of clearance of the earlier wooded landscape.

Differences between the Sunburst and Woodhenge Monuments

There are a number of strong contrasts between the archaeology of the Sunburst Monument and the Woodhenge Monument, primarily in relation to plan and architecture. In addition to the contrast between the pits of the Sunburst Monument and the posts of the Woodhenge Monument, the alignment of the former with the earlier cursus to the west is not reflected by the latter, which lies to the south of this alignment. Furthermore, this is demonstrated by the difference in finds density between the two, but also in terms of the quality of the finds. Only three struck lithics were recovered from the Woodhenge Monument and these were made from a locally derived flint. In contrast, all of the lithic material from the Sunburst Monument reflects more distant sources of raw material and perhaps trade. In addition, the nature of the charred wood assemblage re-enforces this difference. All of the charred remains from the Woodhenge Monument reflect structural activity – essentially the erection of the posts. In contrast, the charred remains from the Sunburst Monument consist of a wider variety of species which presumably reflect firewood and on-site burning, the assemblage being dominated by wood and with no evidence for domestic or feasting activity.

Interpretation of the monuments

The interpretation of the complex at Catholme as a ceremonial site appears appropriate given the monument forms represented and the environmental evidence which has no suggestion of domestic activity. The nature of the ceremonial activity, however, is more difficult to define. The earliest monument in the Catholme Ceremonial Complex is the cursus on its western edge. The function of cursuses is a matter for ongoing debate (*cf*. Hedges & Buckley 1981; Barclay & Maxwell 1998; Barclay & Harding 1999; Chapman 2005). The clustering of cursuses within the middle Trent valley has been likened to similar clusters on the Yorkshire Wolds at Rudston and on Cranborne Chase (Loveday 2004). However, unlike the focused clustering surrounding Rudston, the cursuses within the middle Trent Valley present no specific focal point. The four cursuses within the wider area of Catholme are locally dispersed along the river, indicating that sites were chosen for local purposes in different areas. Hence, the establishment of a focus for later ceremonial activity at the Catholme cursus indicates a different view towards space and the centralisation of ceremonial activity within a specific locale (see Fig. 2).

When the radiating pit alignments of the first phase of the Sunburst Monument were dug during the later Neolithic period they would have generated spoil which may have been arranged around them or to one side, although no direct evidence for slumping was noted in their fills. The regularity of the spoil is open to debate, but it may have reduced the areas for movement through the site between the pits. It may be assumed that the pits remained open rather being deliberately backfilled following their construction, for there is no evidence in their fills to suggest deliberate backfilling, and the inner ring of pits was visible on the ground at the time when the hengiform monument was constructed. As with most circular monuments, the radiating pit-alignments define a central area which must have been considered to have special significance. Expanding outwards from this central area, the 12 radiating alignments of pits provide visual focus outwards from the monument, and also define 12 narrowing avenues between the pits when moving from the outside of the monument inwards; it is possible that the number of these avenues was significant in the design of the monument. The avenues would have funnelled both physical and conceptual space as the centre of the monument was approached, providing greater significance at the centre. From any position outside of the monument this funnelling would have provided a visual effect of lengthening the monument. It appears therefore that, as with many monuments, the architecture ensured the social and spiritual importance of the central *temenos* area where a range of ceremonies may have taken place within view of surrounding external observers.

The recreation of the Sunburst Monument as a small hengiform monument emphasises both continuity of the importance of place and changes in the expression of such importance. This has perhaps more significance given that henges are poorly represented within the West Midlands, although smaller, hengiform structures have been identified, such as at Stapleton in the Lugg valley in Herefordshire, but the dating of these sites is extremely limited (Garwood 2010). The re-use of the inner ring of pits to form the earthwork enclosure would have reinforced the importance of the central area. The expression of inclusion and exclusion was redefined by the positioning of a ditch and two low banks, providing a more direct barrier between performers and audience during ceremonies. The narrow entrance in the western side of this feature reinforces these themes, and it is perhaps significant that this lies at the centre of one of the earlier avenues defined by the radiating pit alignments.

The recutting of the ditch of the hengiform structure in the *26th or 25th century cal* BC to create a segmented ditch again re-emphasises the importance of the central area of the site. As with the hengiform structure, the causeways of the segmented ditch were very narrow, and their positions reflected the central areas of some of the avenues defined by the radiating pit alignments. This indicates that the pits survived as earthworks at this time. Like hengiform monuments, enclosures defined by segmented ditches are extremely rare within the West Midlands (Garwood 2010). The apparent importance of the site was reflected at this time by the deposition of non-local and possibly traded lithics.

The Woodhenge Monument was constructed at the same time as the segmented ditch of the Sunburst Monument, although it appears to have experienced just a single phase of activity. The construction of this feature comprised the erection of extremely large oak posts set in pits of 1.0 m in diameter and up to 1.2 m deep in five concentric circles around a central area approximately 22 m in diameter. The majority of the posts also form radiating alignments from the centre outwards in a similar style to the pits defining the first phase of the Sunburst Monument, which may indicate that it was copying elements of the latter's ground plan, but representing it with upright posts. The density of these posts would have made visibility of the central area from outside the monument extremely restricted. The Woodhenge structure shares similarities with a number of others sites outside of the region, although it is extremely rare to have the posts so densely arranged. From within the West Midlands region, however, timber circles are extremely rare, although broadly similar stone circles are known from the upland fringes (Garwood 2010). The variety of form demonstrated by the Sunburst and Woodhenge Monuments reflect an increasing variety in the traditions of monument construction from the 3rd millennium BC.

The insertion of the inhumation burial within the centre of the segmented ditch of the Sunburst Monument perhaps shortly after 2000 cal BC again reinforces the continued importance of this monument. Burials within circular ditches are well known from all over Britain and north-western Europe, although the insertion of a central burial within an earlier circular structure is less well known. Within the West Midlands, there is a rapid increase in the construction of round barrows from around 2100 cal BC (Garwood 2010) which presumably accounts for the large number of barrows within the region (*cf*. Vine 1982). The burial monument within this area is however unusual compared with these other sites. First there is no evidence of a burial mound overlying the site. It is possible that this has been lost by truncation, although the survival of the earlier features of this site indicates that, if such a feature did once exist, it was never very large, and there is no evidence to suggest that the segmented ditch was recut at this time. It seems most likely that the earlier circular feature provided a familiar focus for ceremonial activity which was again re-enforced by the insertion of the inhumation burial. The inclusion of the exotic pottery and lithics at this time reinforces this interpretation as a special place. It is possible that ceremonies and rites involving burning also took place at this time, although it is not possible to define precise chronological relationships with some of the features such as the area of *in situ* burning and the two smaller pits containing burnt material inserted into the south-western side of the infilled segmented ditch.

There can be little doubt that the primary function of the two pit alignments, defining the northern and southern limits of the Catholme Ceremonial Complex, was to demarcate space. Whilst it seems most likely that these features considerably post-date the ceremonial monuments, their position indicates that they fossilise an earlier boundary or woodland clearance, or perhaps that the area of the Ceremonial Complex remained somehow significant and special.

The re-use of the Complex over time has resonance with numerous sites from Britain and north-west Europe. The establishment of the area as an important place took place during the first half of the 3rd millennium cal BC, and this was revisited on numerous occasions with the re-interpretation of the site through different monument forms. The rarity of the types of monuments found at Catholme further indicates the importance of this locale. Other sites that have displayed such longevity of use following cursus construction include Dorchester upon Thames (Bradley & Chambers 1988), Aston (Gibson & Loveday 1989), and the Greater Stonehenge Cursus (Richards 1990), which similarly display use extending for up to a millennium following construction (Loveday 2004). What is striking about the complex at Catholme is that there were long periods of apparent inactivity between the different phases of up to 500 years. Whether this reflects discontinuous use of the monuments, or whether the remains of cultural activity from these periods are not archaeologically identifiable, is unclear, but has resonance for the interpretation of ceremonial landscapes elsewhere.

The creation of a ceremonial complex in this area relates to its natural landscape setting. The sites lie just north of a confluence of three rivers; the Trent, Tame, and Mease, and the importance of similar confluence landscapes has been demonstrated at other sites along the River Trent (Knight & Howard 2004). Of all of the earlier monuments (the causewayed enclosures and cursuses) within the region, the cursus that formed the beginnings of the ceremonial activity at Catholme was closest to the confluence. This area subsequently became an important locale for the construction of monuments throughout the prehistoric period. The relationship between these specific locales and the development of monumental landscape which continue to be used for many centuries has been linked to a range of interpretations including the role of central places, through to ideas of 'sacred geography' (*cf*. Loveday 2004).

CONCLUSIONS

The Catholme Ceremonial Complex comprises a unique assemblage of monuments that span the period from the late 4th–early 3rd to the early 2nd millennium cal BC, and is situated within a wider landscape that extends the period of ceremonial activity considerably both backwards and forwards. Prior to the 3rd millennium cal BC, the distribution of ceremonial monuments was relatively dispersed across the landscape without any single focus area. During the early half of this millennium a focus was established in a specific environmental context, close to the confluence of three rivers.

Given the special nature of the local environment of the site it is perhaps not surprising that it became a focus for ceremonial activity. However, the uniqueness of the monument types, the continued use of a very small focus area and the evidence for trade and movement of artefacts indicates something more significant. The Ceremonial Complex would have provided a central place in contrast to the earlier dispersed arrangement of ceremonial monuments. The functions of such complexes are constantly open to debate, but it is certain that the Catholme Ceremonial Complex was both unique and extremely important over more than a millennium, and appears to have remained as a separate, perhaps sacred area, well into the later prehistoric period.

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